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Acne Surgery

SUMMARY

Acne surgery consists of comedone extraction of non-inflamed lesions, triamcinolone acetate injections of some inflamed lesions, and extraction of milia. Prevention is a very important part of comedone treatment, especially avoidance of picking, moisturizers and harsh soaps. Instruments are also very important: even the finest may be too thick and may have to be filed down. Acne surgery is only an adjunct of good medical therapy. (Can Fam Physician 1983; 29:955-958).

SOMMAIRE

La chirurgie de l'acné consiste en l'extraction des comédons pour les lésions non-inflammatoires, en injections d'acétate de triamcinolone pour les lésions inflammatoires, et en extraction pour l'acné miliaire. La prévention joue un rôle très important dans le traitement des comédons, plus particulièrement éviter de pincer, de faire usage de crème hydratante et de savons irritants. Les instruments sont aussi très importants: même les plus fins peuvent être trop gros et doivent être effilés. La chirurgie de l'acné n'est qu'une thérapie adjuvante au traitement adéquat.

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ACNE SURGERY involves the treatment of both non-inflammatory and some inflammatory acne lesions using instruments. It also includes the removal of milia, which are tiny keratinous cysts.

Non-inflammatory lesions of acne are open comedones (blackheads) and closed comedones. The instruments used are comedone extractors and sterile lancets, e.g. blood lancets or no. 11 scalpel blades.

Inflamed lesions of acne are papules and pustules (*not* treated with instruments) and nodules and cysts, which may be treated with intralesional steroids injected with needle and syringe. Hypertrophic scars, which are really post-inflammatory lesions, may be treated similarly.

Open Comedones

Although these are not inflammatory, they are often cosmetically more disturbing to the patient than closed comedones. They can be easily recognized by their black tops (due to melanin and other products) in a visibly dilated orifice. To remove them, have the patient lie down and apply direct pressure with the small end of the Schamberg extractor, having first positioned the comedone just inside the end of the hollow portion of the extractor. Avoid treating lesions which are very close to inflamed lesions, because this may worsen the acne. Wait until these have settled down.

Closed Comedones

These are much less obvious than open comedones, but are more clinically important because it is from some of these that the drama of inflammatory acne is played out. They may become inflamed spontaneously, by the patient squeezing at them or by careless acne surgery. Closed comedones are in fact pilosebaceous follicles which have become plugged at the orifice due to abnormal keratinization of the follicle's epithelium, between the junction of the sebaceous gland and the epidermis above (called the acro-infundibulum). Closed comedones may emit chemotactic factors for neutrophils and become inflamed. Failure to recognize and treat these lesions results in neglect of proper treatment for the acne patient.

Although closed comedones may be microscopic, they are frequently visible but easily overlooked unless the patient is examined properly. Have the patient lie down and examine these lesions under a good oblique light. You will see tiny whitish round bumps on the skin surface, usually one to two millimeters in diameter (occasionally much larger). By stretching the skin taut, the lesions suddenly become much more visible (Fig. 1). Closed comedones occur most commonly around the chin, under and along the jaw bone, on the cheeks and forehead.

Active Treatment For Closed Comedones

First locate the minute orifice with the end of a no. 11 blade or a blood lancet. Sometimes it can just barely be seen as a tiny spot a little darker than the rest of the lesion, usually opening downwards and outwards from the comedone. If you are short-sighted this helps—simply remove your

glasses—and if you are long-sighted you may need help with goggles for examining the skin. I position myself above the patient's head with the light in the region of the patient's chest, shining obliquely upwards or from the side.

A little practice will enable you to find the minute orifice, which can simply be widened by inserting the lancet or blade upwards and almost parallel to the skin surface, until a tiny incision about a millimeter wide has been made (see Figs. 2 and 3). You needn't draw blood, but this commonly happens. Then apply the Schamberg extractor so that the comedone is tucked into the end and positioned so that the orifice will empty into the hollow portion of the extractor. Now by applying firm pressure downwards, and at the same time sliding the extractor along the diameter of the comedone towards the orifice, the comedone can be milked dry (Fig. 4).

Locations such as just above or below the lips are sensitive areas, especially if the patient has bands on the teeth. Inserting some gauze or even the tongue acts as a cushion and also stretches the skin, increasing the visibility of the lesions. Alternatively, the skin may be merely retracted well away from the bands.

Prevention

This is a most important part of comedone treatment. They may be made more numerous with face-handling, certain oil-containing moisturizers and cosmetics, and possibly also from endogenous oiliness (seborrhea). I give my patients a little harangue about the importance of avoiding all facehandling, rubbing, picking, resting the hands on the face, and squeezing and I try to reinforce this with each visit. I specify that cosmetics and moisturizers should be oil-free or should contain only oils which are not comedogenic. I try to discourage use of harsh soaps because these lead to excessive dryness and a consequent demand for more moisturizers. It is uphill work all the way because of the tremendous media pressure towards soaps and moisturizers.

If patients are very seborrheic I have them shampoo frequently, use soap-free acne cleaners and/or benzoyl peroxide washes and lotions. Occasionally this is not enough for very seborrheic patients; they sometimes benefit from daily swabbing with aqueous 25% (up to 40%) acetone, which is a good oil cutter but doesn't seem to dry them out excessively.

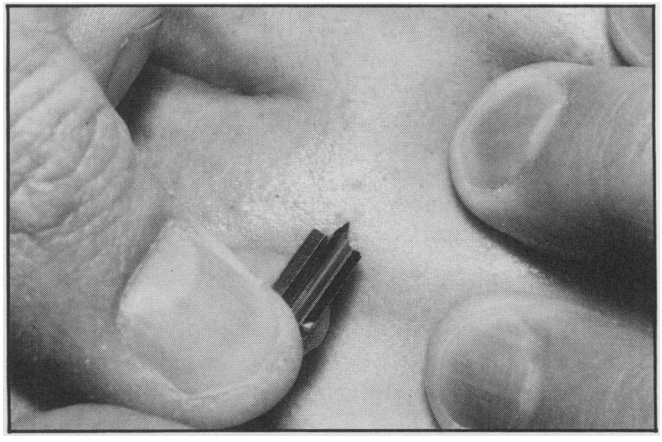
None of these methods decrease endogenous production of oils—only estrogens and retinoids can do this. Topical vitamin A acid preparations are often helpful for patients with long-standing, multiple lesions. I try and start them off with the lotion or cream and get them to progress to the gel. Although the concentrations are fairly standard (0.05%) for each of these the gel appears to have the greatest potency, perhaps because of enhanced penetration. These products do cause some drying, peeling and redness; I warn my patients that this is normal and expected. In addition, acne will go through a period of increased inflammation, usually within one to three weeks after beginning treatment with vitamin A acid. This is normal and usually subsides. Occasionally this substance renders the skin more photosensitive; it is important to warn patients about this all year around.

Complications

The complications of comedone extraction are usually nil, but small bleeding points and an urticarial response at the site of extraction are very common, subsiding within a few hours. Don't do extensive comedone extraction on the day of the school portrait or an important evening date! Tiny keratinous cysts called milia can occasionally be produced from vigorous extraction. Scarring does not appear to occur if the procedure outlined above is followed. Purpura (bruising) of the skin can occasionally occur, especially in elderly patients who have developed acne cosmetica from moisturizers and cosmetics. For these patients a wider incision allows less pressure to empty the comedone. Although the purpura is alarming to both patient and physician, it usually fades within a week, unlike purpura on sites like the forearms in elderly patients. Purpura may also result from treatment of patients recovering from topical steroid abuse dermatitis ('steroid acne' or 'steroid rosacea') because of the thinning out of the dermis which supports the vasculature. I have these patients wait three months or so after applying

Fig. 1. Stretching the skin reveals previously hidden closed comedones. Open comedones can be seen below. Closed comedones can be seen centrally and above right. The site of the closed orifices can just be seen as slightly darkened points at the edges of the comedones, located downwards and outwards from the centre of the face.

Fig. 2. The point of the blood lancet searches for the potential orifice of the closed comedone.



the steroids before I remove their comedones or milia.

Indications

Comedone extraction is indicated in virtually all patients with comedonal acne or acne cosmetica. It is a simple and effective therapeutic technique, but takes a lot of time and is not well paid, even though the results can be extremely gratifying. This is particularly true for the fastidious patients who examine themselves at home under the bathroom light (a good oblique light) and who will be tempted to squeeze the lesions, worsening the acne. Regular acne medications do not necessarily remove these lesions, particularly the closed comedones. However, after many cycles of repeated filling and emptying of the lesions, together with preventive measures, the patient can often be kept in a comedone-free or comedone-poor state with preventive measures alone.

Contraindications

There are few contraindications to comedone extraction. It should not be performed on papules, pustules or other inflamed lesions, nor on comedones located immediately adjacent to such lesions. Elderly skin, or skin recently abused with topical steroids, represents only a relative contraindication, as outlined above.

Instruments

I use only the Schamberg comedone extractors, and even most of these are too thick at the distal end when they come from the factory. I select ones with the thinnest rim I can find (about a millimeter or just under) and I frequently find myself filing or grinding down the outer edge of the business end to the width I want. This can easily be done on a grinding wheel or even with a metal file and should be finished off with fine emery to get rid of all rough spots (Fig. 5).

I find the large round extractors sold in most of the stores more or less useless and they may even be dangerous if used by the untutored patient. I don't very often prescribe a Schamberg extractor for patients to use at home, unless they have multiple open comedones, are resistant to longterm therapy and/or live too far away for frequent visits. I make sure that they use them only on open comedones and give them a lesson in how to use the extractors. I have them show me how they are using them once or twice in follow up visits. Again, they shouldn't use them near or on inflamed lesions.

One word of caution about treating comedones on the nose. Although true open comedones do form on the nose, they are relatively scarce in proportion to what the patient identifies as 'blackheads'. Most 'blackheads' on the nose are pilosebaceous follicles with a prominent ring of melanin in the epidermis immediately encircling the follicular orifice; looked at from above these superficially resemble open comedones. When manipulated, some oily sebaceous secretions are extruded, but a considerable amount of the pigment remains behind, because it is located primarily in the epidermis and not in the follicular orifice. Patients will often squeeze endlessly in this area at these 'pseudocomedones' and may in fact make the pigment even darker through irritation and resultant post-inflammatory hyperpigmentation. Topical acne preparations may also be applied on the nose, although peeling may become quite marked. Patients should slowly increase the length of time that the medication is allowed to remain on the skin each day. In this way, most patients can gradually increase their tolerance to topical preparations not only around the nose but also in all other acne-bearing areas.

Milia can also be removed with the Schamberg extractor. They are tiny (0.5-1 mm, or occasionally larger) whitish keratinous cysts which are located just under the surface of the skin, almost always on facial skin. They are usually smaller and more easily seen than closed comedones, and they lack any sort of orifice to the surface. Milia commonly form idiopathically, but they may form whenever epidermis is presented forcibly to dermis. Thus, they may form in patients who pick at their skin with pins, following dermabrasion or other types of skin abrasions, and also following blistering diseases in which subepidermal blisters form, especially porphyria cutanea tarda and bullous pemphigoid. I have also seen them in a number of patients with acne rosacea dermatitis on the face following abuse of potent fluorinated topical corticosteroid creams.

Milia may be simply removed by making a tiny incision directly or almost directly over the milium, after first gently swabbing the surface with 70% alcohol as in all acne surgery. Pressure is then applied with the small

Fig. 3. The orifice is located, entered and widened; the epidermis has not been merely incised.

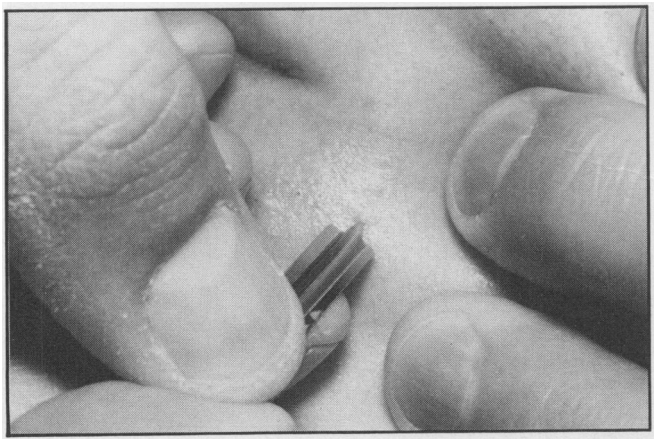
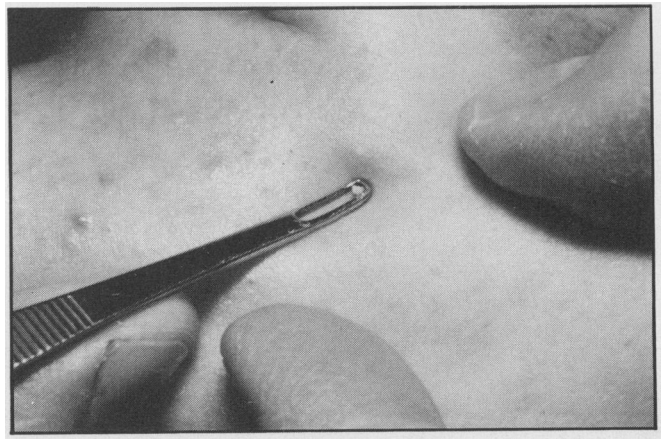
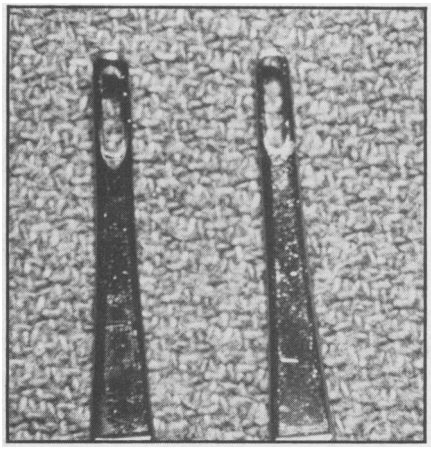


Fig. 4. The semi-solid contents of the closed comedone are extruded into the small lumen of the Schamberg extractor.



end of the Schamberg extractor (Figs. 6 and 7). The little milium (Latin for millet) pops out as a firm kernel, in contrast to the contents of closed comedones which are semi-solid.

Fig. 5. Schamberg extractors. Left: the extractor as it leaves the factory. Note the thick rim. Right: another extractor which has been filed down, permitting greater pressure and control.



Treatment By Injection

Papules and pustules are not treated with instruments. Nodules and cysts and hypertrophic scars may be injected. First ask about allergies and ensure that the patient has removed any chewing gum, since some patients experience syncope following treatment with needles. Have the patient lie down. I usually use triamcinolone acetate and dilute the stock suspensions (25 mg/ml or 40 mg/ml) to the required strength with Xylocaine. The textbook recommendation is 2.5 mg/ml triamcinolone acetate for nodules and cysts. I frequently use higher concentrations—5-10 mg/ml—but inject a smaller volume, depending on the size of the lesion. It is usually 0.05 cc for small lesions and 0.1-0.2 cc for larger lesions. Watch out for untoward atrophy. A concentration of 10 mg/ml accidentally injected intradermally will produce atrophy, and I have seen 5 mg/ml produce transient atrophy. When in doubt, start with the lower concentrations and volumes and work up.

I use a no. 30 gauge ½ inch needle (occasionally 1 inch) for injecting (you will need a larger gauge needle for drawing up the suspension) and inject with a 1 cc syringe which allows closer monitoring of the volume delivered. Triamcinolone acetate is a true suspension, not a colloid or solution, so it requires constant mixing before and between injections to ensure the correct concentration. An air bubble purposely introduced into the syringe (and expelled just before injecting) will serve well for this purpose.

For hypertrophic scars the higher concentrations of intralesional steroid are required. I prefer to inject lesions which are nine to 12 months old, because much of nature's own flattening has occurred by then. Again, one can start with the lower concentration but I frequently use the stock suspensions for these. Some hypertrophic scars and some nodules are very difficult to inject because of the tissue density. I first insert the needle parallel to and along the length of the lesion and then inject while withdrawing into the tiny tunnel formed by the retreating needle.

Cryotherapy before infiltration may facilitate injection into nodules and hypertrophic scars because of the edema induced; cryotherapy afterwards may help more evenly distribute the medication. Avoid cryotherapy in blacks or patients who tan well, unless you are very familiar with their responses. In some patients a steroid-containing tape (Drenison) may be applied instead or in addition. It looks like a translucent adhesive tape and presents the steroid much more evenly to the lesion, but must be changed regularly. Stop application when the desired flattening is obtained, otherwise excessive undesired atrophy may result. Also, stop if there is any sign of a complication from topical or intralesional steroid.

Complications of topical or intralesional steroid are unwanted atrophy, folliculitis, deeper cutaneous infection and pigmentary changes, especially hypopigmentation and telangiectasiae. Don't inject excessive numbers of lesions at one time and watch the total dosage to avoid systemic complications such as HPA suppression.

Cysts may be entered directly and then injected. Patients should be informed that nodules and cysts will frequently scar even if treated; the object of treatment is to try to minimize this.

Conclusion

Acne surgery, while no substitute for good medical management, is nevertheless a very useful adjunct and is frequently essential in the management of the acne patient. ◉

Acknowledgement

I wish to thank Dr. W. E. Pace for many helpful hints on the management of the acne patient.

Fig. 6. A milium (keratinous cyst) has no opening, real or potential, to the surface. For its removal, a tiny shallow incision is made along the length of the lesion in the epidermis and very superficial dermis.

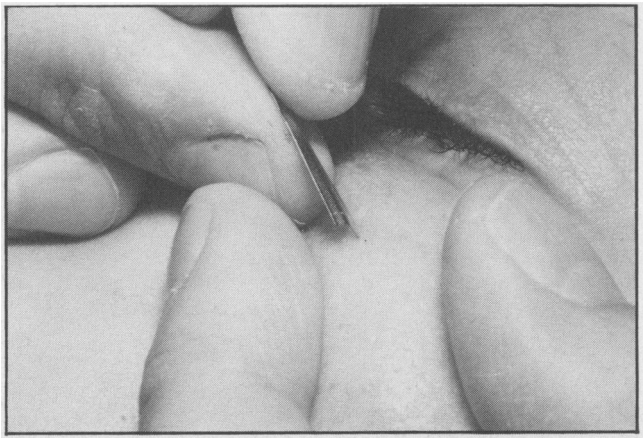


Fig. 7. Pressure with the extractor allows the milium kernel to pop out.